# ISTEP + Grade 4 Science
# Performance Level Descriptors

| *Pass +* | *Pass* | *Did Not Pass* |
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| *Pass+* students demonstrate advanced understanding of the physical world and light, sound, heat, and electrical energy. They have a strong understanding that energy can be generated, moved, and transformed into other forms of energy. *Pass+* students have advanced understanding of Earth's materials: which ones serve as natural resources, what limitations there are, and how they can be used to our advantage. *Pass+* students describe adaptations that plants and animals have that make the organisms suited to the environment in which they live. *Pass+* students describe the forces acting on the motion of transportation systems in great detail, as well as the simple machines that make up those systems. *Pass+* students demonstrate advanced understanding when carrying out investigations through their use of tools, instruments, and recording data. *Pass+* students use a variety of skills to explain why results differ and they are able to interpret the reasonableness of results.<br><br>Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Pass+* level include, but are not limited to, the following:<br><br>• Evaluate and test the design of an investigation.<br>• Explain how changes in speed or | *Pass* students demonstrate proficient understanding of the physical world and light, sound, heat, and electrical energy. They understand that energy can be generated, moved, and transformed into other forms of energy. *Pass* students have proficient understanding of Earth's materials: which ones serve as natural resources and what limitations there are. *Pass* students understand that plants and animals have adaptations that are suited to the environment. *Pass* students describe the forces acting on the motion of transportation systems, as well as some of the simple machines that make up those systems. *Pass* students demonstrate proficient skills when carrying out investigations through their use of tools, instruments, and recording data, and they understand that results of investigations may vary.<br><br>Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Pass* level include, but are not limited to, the following:<br><br>• Recognize that light travels as a straight line through air until it encounters an object.<br>• Describe how weathering changes Earth's land surface.<br>• Describe how adaptations enable | *Did Not Pass* students demonstrate limited understanding of the physical world and light, sound, heat, and electrical energy. They have a basic understanding of Earth's materials. *Did Not Pass* students understand that plants and animals live in different environments, but struggle to recognize the adaptations that make them suited to their environment. *Did Not Pass* students have a basic understanding that there are forces acting on the motion of transportation systems. *Did Not Pass* students demonstrate limited understanding of the use of tools and instruments and of recording data when carrying out investigations.<br><br>Examples of specific knowledge, skills, and abilities for Grade 4 students scoring at the *Did Not Pass* level include, but are not limited to, the following:<br><br>• Recognize that heat, electricity, sound, and light are forms of energy.<br>• Know that sounds are caused by vibrations and can pass through solids, liquids, and gases.<br>• Recognize simple machines.<br>• Understand how to create a completed circuit.<br>• Use measurement skills to collect and record data.<br>• Read tables and graphs. |

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| direction are caused by forces.<br>• Describe a way that a given plant or animal might adapt to the change arising from a human or non-human impact on its environment.<br>• Explain ways in which human interaction with the natural environment has been beneficial or detrimental.<br>• Demonstrate ways that energy can be generated and transferred.<br>• Understand the relationship between the rate of vibrations and the loudness and pitch of sound. | plants and animals to survive in their environment.<br>• Use fossils of plants and animals to describe environments that existed long ago.<br>• Measure and compare the speeds of objects.<br>• Keep accurate records.<br>• Identify a need or a problem to be solved.<br>• Understand the relationship between the rate of vibrations and the loudness and pitch of sound.<br>• Sort rock samples into categories and identify rocks based on physical properties. | • Identify the common structures of a plant.<br>• Understand that rocks are composed of different combinations of minerals. |